## *Amendments to the Claims*

This listing of claims will replace all prior versions, and listings, of claims in the application.

1.      (Currently amended) A method of estimating a timing of a first transmission received with a second transmission as a combined signal over a multiple access interference channel, comprising:

      a.      estimating [[the]] a timing of the second transmission;

      b.      demodulating, decoding and remodulating the second transmission, on the basis of the estimated timing of the second transmission, to generate an estimate of the second transmission;

      c.      cancelling the estimate of the second transmission from the combined signal to generate an estimate of the first transmission; and

      d.      estimating the timing of the first transmission from the estimate of the first transmission.

2.      (Currently amended) The method of claim 1, wherein the cancelling of the estimate of the second transmission is weighted according to [[the]] a probability of the estimate.

3.      (Original) The method of claim 2, wherein the probability of the estimate is calculated using a soft decoding technique to decode the second transmission.

4.      (Previously presented) The method of claim 2, wherein the probability of the estimate is calculated using a soft demodulating technique to demodulate the second transmission.

5.      (Currently amended) The method of claim 1, further including:

e.      demodulating, decoding and remodulating the first transmission, on the basis of the estimated timing of the first transmission, to generate an updated estimate of the first transmission;

f.      cancelling the estimate of the first transmission from the combined signal to generate an estimate of the second transmission; and

g.      estimating the timing of the second transmission from the estimate of the second transmission.

6.      (Original) The method of claim 5, including repeating steps b to g so as to obtain improved estimates of the timings of the first and second transmissions.

7.      (Previously presented) The method of claim 5, wherein the combined signal includes one or more further transmissions.

8.      (Original) The method of claim 7, wherein step a includes estimating the timing of the one or more further transmissions, step b includes demodulating, decoding and remodulating the one or more further transmissions, on the basis of the respective estimated timing of the one or more further transmissions, to generate an estimate of the one or more further transmissions, and step c includes cancelling the estimate of the one

or more further transmissions from the combined signal to generate an estimate of the first transmission.

9.      (Previously presented) The method of claim 8 wherein step f includes cancelling the estimate of the one or more further transmissions from the combined signal to generate the estimate of the second transmission.

10.      (Original) A method of estimating the timings of a plurality of transmissions received as a combined signal over a multiple access channel, comprising:

a.      estimating the timings of each of the plurality of transmissions;

b.      soft demodulating, soft decoding and soft remodulating current estimates of each of the plurality of transmissions, on the basis of their respective estimated timings, to generate soft estimates of each of the transmissions;

c.      updating the current estimates of each of the transmissions by cancelling the soft estimates of the other transmissions from the combined signal;

d.      estimating the timings of each of the transmissions from the respective current estimates of the transmissions; and

e.      repeating steps b to [[e]] d to obtain progressive estimates of the timings of each of the transmissions.

11.      (Original) The method of claim 10, wherein steps a to e are repeated until a predetermined condition is satisfied.

12.     (Original) The method of claim 11, including outputting the soft decoded current estimates.

13.     (Previously presented) The method of claim 10, wherein the timing estimating steps are performed using differential detection.

14.     (Previously presented) The method of claim 10, wherein the timing estimating steps are performed using coherent detection.

15.     (Currently amended) A computer program product embodied on a computer useable medium comprising computer readable program code for performing the method of claim 10 when executed.

16.     Cancelled.

17.     (Currently amended) An apparatus Apparatus for estimating a timing of a first transmission received with a second transmission as a combined signal over a multiple access interference channel, the apparatus comprising: being arranged to:

> [[a.]]   a detector to estimate the timing of the second transmission;

> [[b.]]   a demodulator configured to demodulate, decode and remodulate the second transmission, on the basis of the estimated timing of the second transmission;[[,]]

> a decoder configured to decode the demodulated second transmission;

<u>a modulator configured to remodulate the decoded second transmission</u> to generate an estimate of the second transmission;

[[c.]] <u>the detector configured to</u> cancel the estimate of the second transmission from the combined signal to generate an estimate of the first transmission; and

[[d.]] <u>an acquisition function configured to</u> estimate the timing of the first transmission from the estimate of the first transmission.

18.     (Currently amended) The apparatus of claim 17, wherein the cancelling of the estimate of the second transmission is weighted according to [[the]] <u>a</u> probability of the estimate.

19.     (Original) The apparatus of claim 18, wherein the probability of the estimate is calculated using a soft decoding technique to decode the second transmission.

20.     (Previously presented) The apparatus of claim 18, wherein the probability of the estimate is calculated using a soft demodulating technique to demodulate the second transmission.

21.     (Currently amended) The apparatus of claims 17, <u>wherein</u> ~~further arranged to:~~

[[e.]] <u>the demodulator, decoder, and modulator</u> demodulate<u>s</u>, decode<u>s</u> and remodulate<u>s</u> the first transmission, <u>respectively,</u> on the basis of the estimated timing of the first transmission, to generate an estimate of the first transmission;

[[f.]]    the detector cancels the estimate of the first transmission from the combined signal to generate an estimate of the second transmission; and

[[g.]]    the acquisition function estimates the timing of the second transmission from the estimate of the second transmission.

22.    (Original) The apparatus of claim 21, ~~further arranged to repeat steps b to g so as to~~ wherein the apparatus is configured to obtain improved estimates of the timings of the first and second transmissions.

23.    (Previously presented) The apparatus of claim 21, wherein the combined signal includes one or more further transmissions.

24.    (Currently amended) The apparatus of claim 23, wherein ~~step a~~ the detector is also adapted for ~~includes~~ estimating the timing of the one or more further transmissions, ~~step b includes~~ the demodulator, decoder, and modulator are also adapted for demodulating, decoding and remodulating, respectively, the one or more further transmissions[[,]] to generate an estimate of the one or more further transmissions, and ~~step c includes~~ the detector is also adapted for cancelling the estimate of the one or more further transmissions from the  combined signal to generate an estimate of the first transmission.

25.    (Currently amended) The apparatus of claim 24, wherein ~~step f includes~~ the detector is also adapted for cancelling the estimate of the one or more further transmissions from the combined signal to generate the estimate of the second transmission.

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26. (Currently amended) An apparatus ~~Apparatus~~ for estimating the timings of a plurality of transmissions received as a combined signal over a multiple access channel, the apparatus comprising: ~~being arranged to:~~

[[a.]] a detector configured to estimate the timings of each of the plurality of transmissions;

[[b.]] a demodulator configured to soft demodulate, ~~soft decode and soft remodulate~~ current estimates of each of the plurality of transmissions, on the basis of their respective estimated timings;[[,]]

a decoder configured to soft decode the soft demodulated transmissions;

a modulator configured to soft remodulate the soft decoded transmissions to generate soft estimates of each of the transmissions;

[[c.]] the detector configured to update the current estimates of each of the transmissions by cancelling the soft estimates of the other transmissions from the combined signal; and

[[d.]] an acquisition function configured to estimate the timings of each of the transmissions from the respective current estimates of the transmissions; [[and]]

[[e.]] wherein the apparatus is configured to ~~repeat steps b to e to~~ obtain progressive estimates of the timings of each of the transmissions.

27.     (Currently amended) The apparatus of claim 26, wherein ~~steps a to e~~ progressive estimates of the timings of each of the transmissions are repeated until a predetermined condition is satisfied.

28.     (Original) The apparatus of claim 27, including outputting the soft decoded current estimates.

29.     (Original) The apparatus of claim 26, wherein the timing estimating steps are performed using differential detection.

30.     (Original) The apparatus of claim 26, wherein the timing estimating steps are performed using coherent detection.